



**STATE OF MONTANA
MONTANA DEPARTMENT OF TRANSPORTATION
JOB PROFILE**

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Update

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Formal Review

Date Submitted _____

SECTION I - Identification

Working Title: Road Designer I & II

Department: Transportation

Job Code Number: 173135/173145

Division & Bureau:
Engineering/Highways

Job Code Title: Designer

Section & Unit: Road Design

Pay Band: 5

Work Address: Helena

Position Number:

HQ: 32046, 32086, 32090, 32088, 32049, 32048, 32091, 32079, 32035, 32022, 32054, 32036, 32001, 32067, 32092

Districts: 51001, 51044, 53062, 53041, 53042, 53061, 55044, 55047, 57240, 57040, 57212, 59225

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FLSA Exempt

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FLSA Non-Exempt

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Non-Union

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MPEA

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Blue Collar

Profile Completed By:

Work Phone:

Work Unit Mission Statement or Functional Description:

The **Highways Bureau** of the Engineering Division is responsible for all aspects of the development and design of highways. The Bureau consists of the Photogrammetry & Survey Section, the Hydraulics Design Section, and the Road Design Section.

The **District Offices** located across the state are responsible for supervising contract administration through the supervision and inspection of materials and workmanship on highway construction projects; performance of safety inspections on public owned bridges; and performance of preconstruction and construction surveys. These offices are located in Missoula, Butte, Great Falls, Glendive and Billings.

Describe the Job's Overall Purpose:

Design responsibilities in this profile progress from mid to journey levels. Designer I is assigned work of analyzing data, developing design layouts, plan details and developing plan packages. Designer II identifies design objectives through research and analysis, and develops recommendations based on

that information. Work involves gathering technical data from a variety of sources and integrating the information into a practical layout that is unique and specific to that site.

SECTION II - Major Duties or Responsibilities	% of Time
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Performs a variety of technical and pre-professional field, office and administrative duties in support of ongoing road design projects.

Road Designer I

Project Development	65%
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Reads and understands road plans. Gathers information in order to answer questions and incorporate data into plans.

Drafts road plans using computer assisted design and drafting equipment.

Maintains a variety of files which may include: electronic project files (via DMS), reports, correspondence (electronic and paper), project design file and project calculation file.

Develops the following road design plan elements: Horizontal Alignment, Vertical Alignment, Typical Sections, **Details**, Earthwork, Plan Quantities.

Develops preliminary cost estimates.

Completes and analyzes data from calculations to determine correct procedure and design to develop the plan package.

Incorporates elements from road design and other entities into the plans package for supervisor review.

May develop finished grade contours for the Environmental section to provide to the contractor, so the contractor can create the erosion control plan.

Training & Development	30%
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Stays up-to-date with current training as well as changing practices and requirements to department standards.

Develop understanding of the following MDT guidebooks: Road Design Manual, Detail Drawings, Specifications.

Become familiar with project schedule and sequencing work with other entities.

Other Duties	5%
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Performs a variety of other duties as assigned in support of Section, Bureau and MDT goals and objectives. Assists other MDT programs on special projects and attending training and educational sessions as required.

Road Designer II

Performs the skills associated with Designer I, at a more advanced level. The Designer's workload increases in the scope, number and complexity of projects.

Project Development	75%
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Analyzes data and incorporates design elements from other bureaus and areas (i.e. Bridge, Hydraulics, Geotech, Traffic and Safety, Environmental, R/W and Utilities) into the plans.

Recognizes multiple design alternatives considering site conditions, topography, soils information, material availability, and cost. By minimizing impacts, identifies and recommends the best alternative that is the most cost effective design.

Based on design alternative, develops preliminary plans and calculates quantities.

Creates summary sheets and develops preliminary estimate from the plan quantities.

Develop finished grade contours for the Environmental section to provide to the contractor, so the contractor can create the erosion control plan.

Training & Development **20%**

Stays up-to-date with current training as well as changing practices and requirements to department standards.

Working knowledge of the following MDT guidebooks: Road Design Manual, Detail Drawings, Specifications.

Understanding of project schedule and sequencing work with other entities.

Other Duties **5%**

Performs a variety of other duties as assigned in support of Section, Bureau and MDT goals and objectives. Assists other MDT programs on special projects and attending training and educational sessions as required.

The following duties and/or specific tasks listed under section II above are considered "essential functions" because they require specialized expertise and skill and are the primary reasons the job exists (they must be performed by this position with or without accommodations):

PHYSICAL

- Mostly office work with occasional periods of extensive field work with overnight stays.
- Lifting objects in excess of 30 lbs.
- Extensive travel throughout the state or district to project locations
- Ability to walk over uneven terrain or in water
- Operating a personal computer
- Communicating in writing, in person and over the phone
- Continual walking or standing
- Exposure to extreme weather and high-speed traffic
- Operation of motor vehicles
- Operation of power tools and/or equipment

MENTAL

- Ability to perform work under tight schedules and stressful situations.
- Ability to prioritize work due to multitude of sites, corridors and safety reviews.
- Computing arithmetic operations
- Comparing data
- Compiling information, Analyzing, Coordinating, Synthesizing, Negotiating, Instructing
- Ability to multi-task

- Ability to meet inflexible deadlines
- Professional interpersonal skills and behaviors
- Demands for accuracy in all aspects of work

Does this position supervise others? ☐ Yes ☒ No

May provide technical and professional guidance to lower level and peer Designers.

Attach an Organizational Chart.

SECTION III - Minimum Qualifications - List minimum requirements for the first day of work.

Critical knowledge and skills required for this position:

KNOWLEDGE:

Drafting, engineering practices, mathematics, construction processes and computer assisted design software. Working knowledge of computer aided drafting and design (CADD) software packages. Education in math to include geometry, trigonometry and algebra. Basic knowledge and understanding in drafting or survey.

SKILLS:

Effective written and verbal communication with a variety of audiences, maintain professional working relationships, and can operate various types of office equipment.

Behaviors required to perform these duties:

See MDT Core Behaviors

Education:

Check the one box indicating minimum education requirements for this position for a new employee the first day of work:

- | | |
|---|---|
| <input type="checkbox"/> No education required | <input checked="" type="checkbox"/> Related AAS/2-years college/vocational training |
| <input type="checkbox"/> High school diploma or equivalent | <input type="checkbox"/> Related Bachelor's Degree |
| <input type="checkbox"/> 1-year related college/voc. training | <input type="checkbox"/> Related Master's degree |

Please specify the acceptable fields of study:

Designer I – Band 5 level 1

Combination of technical education and experience equivalent to four years in civil engineering technology or design drafting including demonstrated experience using computer aided drafting and design (CADD) software packages.

Designer II – Band 5 level 2

Combination of technical education and experience equivalent to five years in civil engineering technology or design drafting that includes demonstrated experience using computer aided drafting and design (CADD) software packages.

Experience:

Check the one box indicating minimum work-related experience requirements for this position for a new employee the first day of work:

- | | |
|---|--|
| <input type="checkbox"/> No prior experience required | <input type="checkbox"/> 3 years |
| <input type="checkbox"/> 1 year | <input type="checkbox"/> 4 years |
| <input checked="" type="checkbox"/> 2 years | <input type="checkbox"/> 5 or more years |

SECTION IV – Other Important Job Information

- | | |
|--|--|
| <input type="checkbox"/> Fingerprint check | <input checked="" type="checkbox"/> Valid driver's license |
| <input type="checkbox"/> Background check | <input type="checkbox"/> Other; Describe |

SECTION V – Signatures

Signature indicates this statement is accurate and complete.

Employee:

Name: _____ Title: _____

Signature: _____ Date: _____

Immediate Supervisor:

Name: _____ Title: _____

Signature: _____ Date: _____

Bureau Chief:

Name: _____ Title: _____

Signature: _____ Date: _____

Division/District Administrator:

Name: _____ Title: _____

Signature: _____ Date: _____

Department Designee:

Jennifer Jensen/Designee

Chief Human Resources Officer
Human Resources Division

Signature: _____ Date: _____